

Recall Data Lookup by VIN

API Technical Specification

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Overview

In August 2013, NHTSA issued a Final Rule to announce and implement a VIN-based safety recalls search function on its website, www.safercar.gov, to supplement the make and model year search function currently available. To support this search function, certain light vehicle and motorcycle manufacturers are required to provide certain, discrete information on uncompleted (or “open”) safety recalls based on a given VIN number to NHTSA. The agency will then display this discrete set of information on the website. The information requested and the information returned will be transferred through the RESTful web service described in the Final Rule document and via a programmatic interface.

The purpose of this document is, among other things, to provide the technical specification that details the application programming interface (API), the security mechanisms to be used, and the specific data fields to be used and data supplied.

The following sections describe the guidance and specification for RESTful implementation of this programming interface.

The NHTSA web site/applications will retrieve recalls data from a vehicle manufacturer as follows:

1. Manufacturer Identification

NHTSA's applications identify the world manufacturer identifier (WMI), given in the VIN, and look up the corresponding manufacturer details in the Recalls Portal (under development). Manufacturers use the NHTSA's Recalls Portal to provide uniform resource identifier (URI) for the REST API. It is recommended, but not required, that a manufacturer designate more than one URI on the Recalls Portal and designate one as the primary and the other as the secondary. NHTSA systems will first use the primary URI to make the REST calls before switching to secondary URI in case of unavailability or errors on the primary URI.

In order to meet the August 20, 2014, operational deadline, NHTSA will communicate with each manufacturer to ensure unique URI and API information is exchanged by February 2014. In addition to individual communications, NHTSA is considering exchanging this information via its existing EWR business area in which each manufacturer holds a password protected account. Once NHTSA's Recalls Portal is established, unique API keys will be provided to manufacturers through their accounts within the Recalls Portal. This *API key* may be used by the manufacturers systems to identify and authenticate the REST requests coming from the NHTSA systems. Any requests that do not contain this API key may be ignored by the manufacturer.

2. Requesting Recall Information

The NHTSA system uses the manufacturer URI and sends an HTTPS request with the required set of request parameters. The details of the request parameters are given in the appendix of this document. The NHTSA system sends the VIN number in the request along with the API Key. REST API *requests* will be HTTP GET requests and will be made to the URIs given by the manufacturer (see Section 1 above). The NHTSA system verifies that an individual has entered the VIN information by applying a CAPTCHA test, or another form of verification, to the VIN lookup web form.

As an additional note, each VIN will be validated before sending the request to a manufacturer system.

3. Displaying Recall Information

The response from the RESTful API must include all the matching uncompleted recalls for a given VIN number. The HTTP *response* from the manufacturer API must be in the [JSON](#) format. The response may not include any recall data if the VIN is not associated with any open recalls, or may include data from one or more recalls, because that VIN does have one or more open recalls associated with it. A list of properties that are required in an HTTP response and the type and format of these properties is given in the appendix.

The NHTSA web site/application does not process or save the API response but simply displays the information to the website user. The response will not be saved on the NHTSA servers. The HTTP response headers will not be used for any caching information.

4. Displaying Date of Recall Information Availability

To coordinate with the requirements for recall information that manufacturers must make available on their own websites, the earliest date for which recalls information is made available must also be provided for results shown on NHTSA's website (49 CFR §573.15(b)(10)). Due to the often static nature of this date, manufacturers can supply this information in the "API Access" business area of their online recalls portal account.

Manufacturers will have the option to set this date as a static date (e.g. manufacturer's recall information goes back to January 1, 1990), or as a rolling date (for example, if the manufacturer's database is designed to cover a rolling span of information, such as if a manufacturer decides to make available recall information covering the past 15 or 20 or 25 years of recall information.)

The date stored in a manufacturer's "API Access" business area will be shown in the recall results for each manufacturer. This date will help give owners the scope of the information they receive from their search. For example, a consumer might see the message "Recall information for this manufacturer is only available going back to January 1, 1995. If your vehicle was manufactured before this date, please contact the manufacturer to inquire if additional recall information is available."

5. Displaying Manufacturer Contact Information

In the event a VIN request receives a response of “91 – VIN is not valid” or “93 – API KEY Mismatch” error code, owners should be provided either a customer service number or website URL to contact the manufacturer for more information. This information can be provided in the “API Access” business area of their online recalls portal account.

Once this information is provided in the online recalls portal, owners will see a more useful error message such as “I’m sorry. That VIN is not recognized by our system. Please contact Acme Manufacturing at 1-800-555-555 or www.acmemotors.com/ownercontact for recall information specific to this vehicle.”

The manufacturer systems that provide the recall data must be secure, but also meet certain performance requirements to ensure an efficient return result displayed to users of the VIN search tool. The following sections set forth the security and performance requirements for implementation of the RESTful web service.

Security

The security of the API implementation is ensured by SSL and a unique API key. Manufacturers shall only support SSL encrypted RESTful API requests.

NHTSA applications will make an HTTPS request at a given URI using a specific API key. Manufacturers must make note of the API key and use it in their API implementation. HTTPS GET requests that contain a valid API key must be accepted and further processed.

Additionally, the NHTSA Recalls Portal will provide two NHTSA IP addresses that initiate the VIN requests (REST calls) to a manufacturer’s API. As an added security, manufacturer systems may only accept and process the HTTPS requests originating from designated NHTSA IP addresses.

Capacity

The manufacturer API shall support up to 2,400 requests per minute from the NHTSA systems. This is to ensure that all manufacturers’ APIs support reasonably efficient response times to facilitate efficient return results to the VIN search tool users. These capacity requirements are purposefully aggressive to ensure a smooth adjustment in the face of future growth and to avoid disruptions, or inordinate delays, in service in view of unknown demands that may be placed on the system. It is our intention that the API not take more than 2,000 milliseconds to accept the request, process the request, and respond with a response. This 2,000 millisecond process time excludes any delay the user may experience due to their connection or hardware limitations.

NHTSA recognizes that there could conceivably be future unexpected demands or isolated incidents when even this aggressive capacity is insufficient. NHTSA will be monitoring manufacturer and overall system performance and will, as needed, address capacity and

response time issues as appropriate. If a manufacturer realizes its systems are consistently failing to meet expectations, it should contact NHTSA.

Availability

The manufacturer API shall be available and respond with 99.99% uptime during the operating hours (7AM EST – 11PM EST). Outside these operating hours, the manufacturer API shall be available and respond with 98% uptime. The Recalls Portal will allow the manufacturer to list up to two publicly available API servers. High availability solutions may be implemented for the manufacturer API so that NHTSA systems can automatically default to the secondary URI if the primary URI is not available or does not respond within a given optimal time.

In the case of system maintenance and non-availability of the manufacturer API, the NHTSA systems rely on the API/server response codes and may provide a generic text message to the users informing of the maintenance.

NHTSA's systems will be monitoring and recording manufacturer system responses that indicate systems are not available. Persistent failures to perform will be addressed as needed with the manufacturer. If a manufacturer realizes its systems are consistently failing to meet expectations, it should contact NHTSA.

Appendix: API Specification and Examples

The manufacturer API must only accept HTTPS GET request and respond with available recall data for a given vehicle identification number (VIN).

Request Parameters

```
vin/{id}?api_key={api_key}
```

Request Method: GET

Response Format: JSON

Manufacturer shall obtain their api_key from the NHTSA Safety Recalls Portal. All NHTSA requests come from a designated set of IP addresses.

Sample Request

```
https://www.example.com/v1/api/vin/1N7QPZ745T5698527?api_key=pr64rfzt9mcuz2w2qdscyc4w53d78943
```

The URL in this sample request is `https://www.example.com/v1/api/vin/` indicating that this is a *version 1* of the API accepting a VIN ID parameter and a query string parameter. The api_key is generated by NHTSA and is specific to each manufacturer account and is available in the Recalls Portal.

Response Format

The following table provides a list of all fields in the API response. All fields are **required**, except those noted with an asterisk (*), and for which manufacturers at the public meeting held in January 2014 generally indicated were wanted for inclusion in responses at their option. If the response fields are longer than the specified then the NHTSA web site truncates the text to the given length and discards the other text.

Field	Description	Type/Format	Length/Value
vin	The vehicle identification Number	string	17
status	A response status indicating whether the lookup process is successful or not. If the status is false, then use the error_code (see below).	Boolean	true/false
year	The vehicle model year	integer	4
make	The vehicle make	string	25
model	The vehicle model	string	256
manufacturer_id	Unique identifier for a given manufacturer. The manufacturer name will be determined based on this ID.	Integer	4

recalls_available	Indicates whether the given VIN has recalls or not	Boolean	true/ false
number_of_recalls	Number of recalls available for the given VIN. If recalls_available is false then the number_of_recalls must be 0.	Integer	2
refresh_date	Displayed when recalls_available is false and the value of number_of_recalls is 0. If recalls_available is true then the maximum date of available recalls, used in the enumerated list, may be given.	String Month(three letters) DD,YYYY	12
Recalls	Enumerated (see below).		
nhtsa_recall_number	The NHTSA recall number	String	6-9
mfr_recall_number (*)	The Manufacturer recall number. If not applicable or available, use the text "NA". NHTSA will interpret a blank response as "NA".	String	6-9
recall_date	Recall 573 date. E.g.: Nov 14, 2012	String. Month(three letters) DD,YYYY	12
recall_description	The recall description as provided in the recall 573 notification.	String	2000
safety_risk_description	The recall safety risk description.	String	2000
remedy_description	The remedy description.	String	2000
mfr_recall_status	A two digit code to indicate the Recall Status. See Reference Codes below.	Integer	2
mfr_notes (*)	An optional manufacturer text field that could be used for contact information or other informational message to the owner. NHTSA will interpret a blank response as "NA".	String	150
refresh_date	The date that the data for this recall was last refreshed in the manufacturer's database.	String Month(three letters) DD,YYYY	12
error_code	A two digit code to indicate possible error codes with the requests or responses. See Reference Codes below.	Integer	2

Reference Codes

mfr_recall_status:

- 11 Recall INCOMPLETE
- 12 Recall INCOMPLETE. Remedy not yet available.

error_code:

A list of error codes that could be used by the response packet.

- 91 VIN is not valid
- 92 Server Error
- 93 API KEY Mismatch

Sample Responses

A) Sample Response for a VIN with two available recalls.

```
{
  "vin": "1N7QPZ745T5698527",
  "status": true,
  "year": 2004,
  "make": "Acme",
  "model": "Supra",
  "manufacturer_id": "0014",
  "recalls_available": true,
  "number_of_recalls": 2,
  "refresh_date": "Feb 07, 2014",
  "recalls": [
    {
      "nhtsa_recall_number": "13V702",
      "mfr_recall_number": "NA",
      "recall_date": "Mar 24, 2013",
```

```
"recall_description": "It may be possible to remove the key from the ignition when the vehicle is running. As such, these vehicles fail to conform to the requirements of the FMVSS 114, \"Theft Protection\".",
```

```
"safety_risk_description": "If the ignition key is removed while the vehicle is still on and/or the vehicle is not in Park, the vehicle may rollaway and the unintended movement of the vehicle may result in a possible crash or injury to pedestraians.",
```

```
"remedy_description": "Dealers will reinforce the affected fork locking bolt connections, free of charge. Repair availability expected in November 2013.",
```

```
"mfr_recall_status": 12,
```

```
"mfr_notes": "Visit manufacturer's website at http://www.example.com or call 1-800-xxx-xxxx example toll-free number for more information.",
```

```
"refresh_date": "Feb 07, 2014",
```

```
},
```

```
{
```

```
"nhtsa_recall_number": "12V590",
```

```
"mfr_recall_number": "ABC123",
```

```
"recall_date": "Jun 16, 2012",
```

```
"recall_description": "The affected vehicles may have improperly sized terminal crimps on the seat side-airbag wiring harness which may cause the seat side-airbags to malfunction.",
```

```
"safety_risk_description": "In the event of a crash necessitating airbag deployment the airbags may not operate as designed, increasing the risk of injury.",
```

```
"remedy_description": "Dealers will replace the ignition lock cylinder and the two associated keys. This service will be performed free of charge.",
```

```
"mfr_recall_status": 11,
```

```
"mfr_notes": "Visit manufacturer's website at http://www.example.com or call 1-800-xxx-xxxx example toll-free number for more information.",
```

```
"refresh_date": "Feb 09, 2014",
```

```
}
```

```
]
```

```
}
```

B) Sample Response for a VIN with no available recalls.

```
{
```

```
"vin": "1N7QPZ745T5698527",
```

```
"status": true,
```

```
"year": 2004,
```

```
"make": "Acme",
```



```

"model": "Supra",
"manufacturer_id": "0014",
"recalls_available": false,
"number_of_recalls": 0,
"refresh_date": "Feb 08, 2014",
"recalls": []
}

```

C) Sample Response for an invalid VIN.

This sample response can be used for any cases that are not covered in the samples (A) and (B) provided above. The above sample cases cover the success cases of a VIN lookup. This sample case with an error code of 91 may be used if the manufacturer system cannot recognize the VIN or cannot look up the information in its database.

```

{
"vin": "1N7QPZ745T5698NNN",
"status": false,
"error_code": 91,
}

```

D) Sample Response when an error occurs with the API.

When an error occurs with the manufacturers system or servers, then an error code shall be supplied. If the manufacturer system cannot respond to the NHTSA' API requests, then the NHTSA systems use the HTTP status code (5xx or otherwise) to notify the user accordingly on the NHTSA VIN lookup interface.

```

{
"vin": "1N7QPZ745T5698527",
"status": false,
"error_code": 92,
}

```

E) Sample Response for a mismatched API key.

When API Key cannot be validated, then an error code shall be supplied. Manufacturers generate the API key on the Recalls Portal and use that API Key in their systems. If the API Key, that is sent by the NHTSA system, with the VIN API request does not match that of the API Key in the Manufacturer system, then the error code 93 shall be sent with the response.

```

{
"vin": "1N7QPZ745T5698527",
"status": false,
"error_code": 93,
}

```

}